Hawaiian Gazette Supplement, November 12th, 1884.

REPORT OF COMMITTEE ON MANUFACTURE OF SUGAR.

To the President and Stockholders of the Planters' Labor and Supply Co.:

GENTLEMEN: The past year, from a sugar-manufacturing point of view, has been mainly remarkable for the low price which raw sugar has been commanding in the markets of the world.

This staple has been cheaper than ever before known in the history of the industry. Raw sugar has been selling in Great Britain as low as $50 per ton, and it appears that it may drop to a lower price.

Manufacturers have been, therefore, producing either at a loss or at greatly diminished profits.

The low prices are due to the fact that the production of sugar has been increasing more rapidly than the consumption; a large surplus stock of sugar greatly in excess of the demand has consequently been accumulating. It is, therefore, evident that until consumption is sufficiently increased, or production sufficiently reduced, to work off the accumulated stock and bring supply and demand into more satisfactory relationship, prices will remain low.

As the heavy stocks of sugar in the principal markets of the world have not yet begun to diminish, it is by no means unlikely that prices may touch a lower point before they rise.

In the West Indies and other cane-growing countries where yields are low, many plantations we are told are being abandoned, which must undoubtedly reduce the future supply, and would lead to better returns were there not a more than counter-balancing increase of production elsewhere.

Even with the low prices beet sugar making has proved profitable in Europe, and the coming beet crop it is estimated will exceed any previous one. The beet sugar industry can endure these hard times without seriously suffering, because during all the time that sugar was comparatively high in price science and ingenuity were being constantly brought to bear on it, and suggested improvements of merit have been promptly adopted.

We cane-sugar manufacturers, on the other hand, have been bungling along with our clumsy rollers, independently contemptuous of science and nonchalantly wasting from 20 to 40 per cent. of our laboriously cultivated, soil-exhausting agricultural product.

For over thirty years on these Islands cane juice has been extracted solely by three-roller mills, and these same mills, in proportion to their size, extract no more now than they did thirty years ago.

Almost the only improvements adopted have been for labor or fuel-saving, and have been forced on us by the scarcity of these necessaries. Economy of raw material has been apparently disregarded. The possession of even double or triple effects is the exception, not the rule, although beet sugar factories have been using them for years past.

Unless we are going to produce sugar from cane as cheaply as the beet-sugar makers do from beet-root, we had better prepare for a gradual extinction of our industry. It behooves us therefore to lose no time in learning and adopting more perfect and economical methods than those now in use.

As the improvements in the beet-sugar industry are mainly due to the application of science, your Committee would urge that, at any sacrifice, a really scientific chemist should be secured by the Trustees.

Your Committee ventures to express regret that the Trustees have not thought fit to act in accordance with the resolution unanimously adopted at last year's meeting, which instructed them to engage the services of a competent chemist as soon as possible.

During the past year no new processes or inventions of importance, applicable to our industry, has come under our notice. The Eckman-Espeut process of slicing cane and boiling it under pressure has apparently not yet been tried on a large scale.

The diffusion process has been attracting great attention in this and all other sugar-growing countries, and so much has been written on the subject in the PLANTERS' MONTHLY and other journals, that planters may be assumed to be fairly familiar with its principle and character.

So much is known favorable to the process, and such general interest is felt in it, that your Committee feel justified in recommending that a thorough trial of its merits be made in this country at the expense of the Planters' Labor and Supply Company.

It surpasses comprehension that a process which has been the salvation of the beet-sugar industry in Europe should have been so almost utterly neglected through all these years in its application to the more easily manufactured sugar-cane.

The diffusion process is no modern invention; a patent was taken out in 1847, no less than 37 years ago, by a M. Michiel, for its application to the sugar-cane in French and British colonies. Dr. Evans, in the *Sugar Planters' Manual* of the same year, referring to this then new process, says: "This scheme presents much that is admirable; nevertheless, like many others, it requires the touchstone of experience." Is it not wonderful that so few and such feeble attempts have since been made to apply the desired "touchstone." By all means let the Planters' Labor and Supply Company take some decided and active step in this matter. The process, we read, has already been proved a success in application to the juvenile sorghum industry.

Dr. Scheibler's strontia process for extracting sugar from molasses gains ground in Germany. A second factory has been erected near Berlin. It is possible that it might pay to have a factory in Honolulu for treating molasses by this plan.

The "Elution process," described by Mr. Koelling in the letter which accompanies this report, deserves attention, though as it is a somewhat difficult process it might not succeed at first, in the absence of the skilled chemists which are attached to every German sugar factory. Mr. Moller of the Pioneer Mill, Lahaina, promises a paper on the subject to the PLANTERS' MONTHLY at an early date, and hopes to test the process practically at Lahaina before the next annual meeting, when if successful he will present for inspection samples of sucrate of lime, and sugar made from it. Some experiments have been made, we understand, by sprinkling begasse with water or steam and re-crushing, and further experiments are to be made.

This plan should prove advantageous where there is an excess of bagasse for fuel, but it is doubtful if it would where wood or coal have to be burnt, and the first crushing is properly conducted. Your Committee has made some effort to collect statistics as to the proportions of first, second and third sugar, and average polarizations obtained at different plantations, and shrinkage in weight between plantations and San Francisco. Little encouragement has been met with at the hands of planters, and for the figures submitted in the accompanying table the Committee is mainly indebted to Messrs. T. H. Davies & Co., H. Hackfeld & Co., and Mr. R. Catton, who have obligingly furnished us with all the information in their power.

The great variety in the proportions of 1st, 2d and 3d sugar at different plantations is very remarkable and calls for attention.

The shrinkage in weight between plantations and San Francisco is in almost all cases greater than it should be and indicates that more care should be taken in packing sugar and perhaps also in drying.

Mr. Koelling furnishes a very interesting table of comparative polarizations made on the Princeville plantation and in San Francisco, which shows the latter to be notably higher than the former. It is a pity that more planters do not furnish similar statements.

Statistics on these matters from a number of plantations could not fail to be instructive and valuable.

In concluding this their fourth annual report, your committee cannot but express regret that it has not succeeded better in collecting and disseminating information of value, and beg to suggest that if possible a chairman at least should be appointed who could have, combined with the necessary interest in the subject, sufficient leisure to take much more energetic measures than have been hitherto attempted.

Respectfully submitted,

R. A. MACFIE, JR.,
Chairman.

HONOLULU, October, 1884.

Plantation Weight, &c.

Lts.	Weight.	Pol.	S. F. price.	Value.
	lbs.			
1-17	52,000	96½	$ 5 46	$ 2,839 20
2-19	13,650	96½	4 71	624 80
1-20	38,350	96½	5 33½	2,045 92
1-21	50,700	96½	5 33½	2,704 84
2-22	15,110	88½	4 58½	878 19
1-23	56,420	96	5 00	2,821 00
4-24	22,750	84	3 50	796 25
3-25	19,500	82	3 25	633 75
1-26	65,700	96½	5 12½	3,284 83
2-27	20,650	89½	4 18½	865 56
1-29	82,420	96	5 06½	4,172 51
1-34	100,820	97	5 25	5,292 55
	539,890			$28,945 56

San Francisco Weight, &c.

Lts.	Weight.	Pol.	Price.	Value.
	lbs.			
1-17	49,896	97	5 52½	$ 2,755 51
2-19	13,660	96½	5 08	675 85
1-20	38,143	96	5 39½	2,058 77
1-21	19,087	96	5 00	954 35
	31,249	97	5 52½	1,725 73
	11,196	89	4 12½	461 84
2-22	7,430	92	4 89½	364 33
1-23	56,329	96	5 12½	2,876 61
4-24	22,437	86	3 75	852 32
3-25	19,477	88½	3 81	742 36
1-26	60,648	97	5 12½	3,108 21
	2,935	96	5 06½	148 58
	4,789	89	4 12½	197 55
2-27	14,955	90½	4 37½	654 28
1-29	80,128	97	5 18½	4,156 64
1-34	22,897	97	5 25	1,202 09
	77,385	95	4 87½	3,770 58
	532,140			$26,708 80

Loss in weight between the Plantation and San Francisco ....1.44 per cent.
Loss in value " " " ....099 "

Average Polarization in San Francisco..........94.

HANALEI, KAUAI, October, 17, 1884.

Mr. R. A. Macfie, Jr., Chairman of Committee on Sugar Manufacture, Planters Labor and Supply Company:

DEAR SIR,—The last season has been very un-satisfactory to sugar planters and manufacturers here. Germany, we are told, has paid from 5 to 35 per cent. dividends. If this is so, it must be the result of the science of chemistry and machinery as applied to it in the manufacture of sugar. The German sugar manufacturers are unremitting in their task of searching for something superior to that which they have in one or the other branches of this industry and apply it as soon as found. The Sterutium process in a factory near Hildesheim, Germany, used for obtaining all the sacharine matter in molasses as marketable sugar is reported as working very successfully, and one more of the kind has been erected near Berlin, Germany. It seems that process cannot be applied by all factories, as the amount of molasses from one plantation would not warrant the erection of such a plant. But it would be our duty to ascertain whether it would be profitable or not should we have one or two such establishments and work up all the molasses of the island.

In nearly all German factories a practice called 'elution' is used for obtaining all molasses sugars, and it works very successfully. The mode of operation, as far as I can learn, is as follows: Unslacked lime is powdered. The molasses is then heated and run into a machine and mixed with the powdered lime under heavy pressure. The mixture which, when complete is a thick substance just fluid enough to run off through an open spout into tanks of about six cubic feet capacity. In about two hours this becomes a hard substance. This is afterwards ground into dust, and put into containers called "Eluseur," in which it is treated with alcohol which changes the flour of lime into a milky juice which is then drawn into a large pan called "Blader," in which the operation is such as to extract nearly all the alcohol and leave a sacharat of lime, which is then used as common milk of lime for clarification of juice. All sacharine matter is now free and crystalizes readily like fresh juice. In connection with these modes of obtaining all sugar, I most sincerely urge the engagement of a good chemist, one who has made the manufacture of sugar in all its intricacies a special study, and who is thoroughly acquainted with the methods of operation as mentioned above, so that we could derive all the benefit possible.

During last season I have been polarizing part of our sugars before shipping to Honolulu in order to compare our analysis with the San Francisco ones, and it might be interesting to others to know the result. I have, therefore, enclosed a table showing the weights and polarization here and in San Francisco in which you will see that the loss in weight was 1.44 per cent., which was to some extent balanced by a higher polarization in San Francisco due, I believe, to evaporation of water during transit. The loss in value, if we calculate in plantation weight, was only 99-100 per cent., or a trifle less that I per cent. I made one analysis of each lot. In San Francisco, owing to the sugar arriving there at different times, some of the lots have two separate analysis, and it is astonishing to note the difference between them. Only a few days intervening between the first and second sales.

I also send you a short report of the percentage of sugar obtained last season: We had 1,080,800 U. S. gallons, average density 8¼° Baume. 1,66½ lbs. sugar per gallon. 72 per cent. first sugar, 19 per cent. second sugar, 7 per cent. third sugar, 2 per cent. fourth sugar. Total 100,

Yours very truly,

CHAS. KOELLING,
Manager, Princeville Plantation.

PERCENTAGE.			POLARIZATION.				Shrinkage between Plantation and San Francisco.	
A.	B.	C.	A.	B.	C.	Avg.		
72	21.3	6.7	...	...	...	...	2¼ p. c.	1
73	19.2	7.8	...	...	...	...	...	2
73.8	21.6	4.6	...	...	...	...	2 "	3
69.2	21.4	9.4	...	...	...	...	2 "	4
74.1	19.4	6.5	...	...	...	...	5 "	5
77.2	17.7	5.1	96.3°	84.6°	81.7	93.5	73-100 "	6
72	19	7 and 2 per cent.		D.	...	94	1¾ "	7
...	...	...	...	...	...	...	3¼ "	8
...	...	...	...	...	...	...	2¼ "	9
...	...	...	...	...	...	...	1.86	10
...	...	...	...	...	...	...	85-100 "	11
...	...	...	...	...	...	...	2 "	12
...	...	...	...	...	...	...	2¼ "	13
...	...	...	...	...	...	...	2¼ "	14
66	25	9	96.5	89.7	86.1	93.86	...	15
70	24.5	5.5	97.1	92.6	86.5	95.41	...	16
68	24.5	7.5	97.4	90.3	85.7	94.78	...	17
73.5	18.75	7.75	96.5	89.8	85	94.35	...	18
70.5	23	6.5	97.3	91.7	88.3	95.42	...	19
67	26.5	6.5	97.7	91.2	85.3	95.17	...	20
82.5	12	5.5	96.8	90.1	88.8	95.55	...	21
86.8	9.9	3.3	...	...	...	95	...	22
92.7-98.8	88.5-90.9	85.7-86.4	These are the highest and lowest polarizations of sugars from various plantations sold in St. Louis by H. Hackfeld & Co. They are exceptionally high.				...	23
96-97.9	89.9-91.5	85.5-86					...	24
92.7-96	83-88.9	81.2-85.5					...	25
96.8-98.7	85.5-91	86-86.4					...	26
97-98.9	90.4-92.5	87-88.4					...	27
93.7-97	86-90.5	81.7-85.4					...	28

Polarization which should appear in the next three columns.

STATISTICAL TABLE FOR THE YEAR ENDING SEPT. 30, 1884.

NAMES OF PLANTATION.	No. of Acres of Cane Land.	No. Acres Plant Cane cut.	No. Acres Ratoons cut.	No. tons Sugar made.	No. Acres planted.	No. Acres Ratoons for next crop.	Average No. of men employed.	Average No. of men under contract.	Average No. of men not under contract.	No. of new men required during next 12 months.	Kind of Boiling Apparatus. Vacuum Pan.	Double Effect.	Tripple Effect.	No. of Steam Boilers.	Tns Coal used past year.	Cords of Wood used last year.	REMARKS.
Island of Hawaii—																	
Papaikou	1,000	290	70	992	385	125	160	120	40	50	1	...	...	4	...	500	
Pepeekeo	...	300	250	1800	300	250	350	200	...	...	2	...	...	3	...	...	
Paauhau	3,000	300	187	2150	385	245	170	32	138	50	1	1	...	2	...	...	
Paauilo	1,713	219	146	1632	219	182	60	40	20	...	...	...	...	...	...	...	
Kukaiau	1,250	...	...	...	300	...	60	...	60	30	...	...	...	4	...	...	
Ookala Sugar Co.	1,200	310	...	946	250	85	175	140	35	75	1	1	...	4	...	150	
Soper, Wright & Co.	500	200	30	398	180	...	35	20	15	20	...	...	...	...	...	...	
Hawi	400	40	...	100	330	60	30	...	30	...	...	...	...	...	...	...	
Honomu	700	145	85	600	227	135	115	50	65	...	1	...	...	1	...	300	103 No. of acres planted for next crop.
Laupahoehoe Sugar Co.	4,000	355	125	1750	650	445	386	115	220	...	2	1	1	7	150	1000	
Island of Maui—																	
H. C. & S. Co.	10,000	2000	400	7092	1000	...	1200	42	1158	1000	2	...	3	14	1574	...	
Wailuku Plantation	1,336	282	424	1849	327	284	225	180	50	40	2	1	...	5	300	22	
Pioneer	550	200	350	1800	550	350	275	35	240	100	...	1	...	6	...	54	Lahaina.
W. Y. Horner	...	150	350	1800	150	350	180	20	160	...	...	...	...	...	...	...	
Grove Ranch Company	1,800	240	...	1318	230	...	100	40	60	15	...	...	...	...	...	...	
Island of Oahu—																	
Kaneohe	500	85	107	572	50	100	85	45	40	...	Sorghum pans & water power.						
Waianae Company	600	100	205	1328	140	130	200	90	110	...	1	...	1	4	...	...	
Makaha	300	32	...	240	100	32	50	32	18	...	...	...	...	...	...	...	
Island of Kauai—																	
Makee Sugar Co.	900	210	191	1055	310	210	235	108	117	...	1	1	...	5	244	250	
Koloa Sugar Co.	300	110	50	570	95	100	40	30	10	10	...	...	...	...	...	...	
A. H. Smith & Co.	1,200	235	105	1100	350	202	235	230	5	50	1	1	...	4	...	...	
Kilauea Sugar Co.	1,000	174	120	913	150	144	175	40	130	60	2	...	...	3 1pe	20	900	
Hanamaulu	1,400	250	300	1900	325	250	150	68	80	20	...	...	...	...	...	...	

REPORT ON RECIPROCITY.

To the President of the Planters' Labor and Supply Company:

SIR,—The Committee on Reciprocity feel it no easy task to frame a report which would bring forth any new feature or new facts of interest to the Planters' Labor and Supply Co. in regard to the subject of Reciprocity, while everything in regard to it has already been intelligently discussed and become the subject of newspaper articles and so forth.

The Society of Hawaiian Planters are so well conversant with the history, the terms and the effects of the Reciprocity Treaty with the United States of America, that this Committee would make but a fruitless attempt in trying to instruct them on these matters. The Planters are sensibly aware also of the manifold attempts made to subvert the existing treaty stipulations, and we are happy to record that these efforts have not been successful.

The Reciprocity Treaty has now passed the eighth anniversary of its existence, and it has fully realized the expectations made of it at the time of its passage. Although no doubt the benefits of the Treaty have been felt more sensibly in this country, on account of its small size and limited population, they have none the less been mutual and reciprocal between the two countries. Carefully prepared tables and statistics have shown an immense increase in the tariff and commerce with the United States of America, since the Reciprocity Treaty went into operation, the benefits of which have directly and indirectly been enjoyed by all classes. On the other hand these islands have been prospered in their home industries in a measure, the full extent of the benefits of which have been felt in every direction, and we trust may continue to bless this country.

The average amount of the invoice value of importations of goods from the United States of America of the five years preceding the Treaty (1871-1875) was $865,151, while that of 1883 reached the large figure of $3,892,234. At the same time the export of sugar has increased from 12,788 tons of 2,000 lbs. each in 1877, the first year of the Treaty, to 57,053 in 1883, and will be further exceeded this year. These figures show the reciprocal benefits to both countries, although it may be contended with some justice that from this standpoint alone these islands have the better part of the bargain. We do not propose to discuss here the political considerations which strongly favor reciprocal relations with the United States of America and probably more than offset the difference in figures against these islands.

Many and violent efforts have been made with the intent of abrogating the Treaty and most of them were based on the grossest misrepresentation of facts and on slanders of this country, its institutions and its people.

This Committee does not deem it necessary here to call to mind the stories told of slavery, of fraudulent manipulations of foreign sugars, of unlimited extent of cultivable sugar lands and of the unlimited quantity of sugar to be manufactured here in the future to the detriment of the sugar producing States of the United States of America. All these misstatements have been successfully and substantially refuted, and can hardly ever again serve as a weighty argument before a Committee of Senators of the House of Representatives of the United States of America in favor of the abrogation of the Reciprocity Treaty with these islands. Still we should continue carefully to watch over our interests and use all legitimate means in our reach to maintain the present treaty relations with the United States of America. So far this has been faithfully accomplished by the judicious and intelligent efforts of the Hawaiian Minister Resident at Washington, of Dr. J. Mott Smith, Col. Z. S. Spalding, and a few others, and to them due appreciation and thanks are accorded.

Now more than ever, while sugar prices are low and likely to remain so for a length of time, is the Reciprocity Treaty of great value to the sugar manufacturing interests of this country in particular, and this Committee beg to close their report by expressing the hope that nothing may be done by which the permanence of the Reciprocity Treaty with the United States of America may be disturbed.

F. A. SCHAEFER.
E. P. ADAMS.
H. W. MIST.

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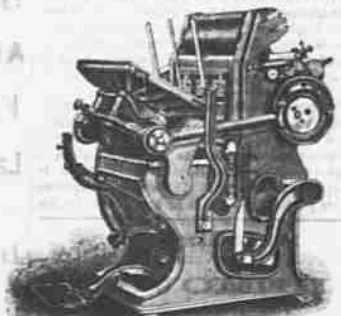

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